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Integrated Management Information System project

Ninth progress report of the Secretary-General

Summary

The present report provides an update on the current status of the Integrated Management Information System (IMIS) project and of the operation of the system together with a presentation of the work still to be undertaken.

During the past year, major progress was achieved in a number of areas. However, data problems and implementation difficulties far beyond any measures previously known or planned were also experienced. Solving these issues has entailed considerable unplanned effort and consequentially created additional resource requirements.

As to design and implementation, successes included:

(a) Implementing improved operations of Release 3, financial and support services applications, at Headquarters;

(b) Re-engineering of Release 2, staff entitlements, to take into account additional requirements and the integration with Payroll;

(c) Analysis and beginning of construction of Release 4, payroll;

(d) Implementation of IMIS Release 1 at four additional offices away from Headquarters (Addis Ababa, Geneva, Nairobi and Santiago);

(e) Implementation at Headquarters of the travel functionalities;

(f) Upgrade of the system to the latest versions of all of its technical components resolution of performance problems and installation of the new version at other offices;

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(g) Increased cooperation between the user organizations for a common maintenance of the system.

Further efforts are still required in the following areas:

(a) Improvements to the system, by making system changes to facilitate, among other things, implementation at offices away from Headquarters;

(b) Completion of data standardization in both the personnel and finance areas to support the entitlements and payroll processing;

(c) Review of processes, reports and procedures to facilitate the preparation of the financial statements;

(d) Completion of additional reports;

(e) Improvement of interfaces and bridges that bring data into IMIS, especially from other duty stations;

(f) Implementation of Payroll at Headquarters;

(g) Implementation of Releases 3 and 4 at offices away from Headquarters;

(h) Assumption of maintenance and operations support currently performed by the contractors.

The recommendations of the Board of Auditors, which are expected to be reflected in a report to be issued in early 1998, are understood to be as outlined below:

(a) The new version of Release 2 should be implemented as soon as possible;

(b) A plan to resolve outstanding issues, mainly concerning Release 3, should be prepared and resources allocated to it;

(c) There should be an improvement in and an increase in the number of reports, in particular, to support the preparation of financial statements and to monitor the data integrity of the system;

(d) Implementation of the long-term United Nations maintenance strategies to reduce dependence on the contractors should be completed;

(e) Monitoring of the activities and of the deliverables still due or already received from the main contractor must be improved.

The Board of Auditors also noted that, owing to insufficient United Nations resources, the contractor had been requested to provide since 1993 implementation support services for a total cost evaluated at $3.2 million, of which $1.9 million was for data standardization. These costs have been charged to the IMIS project budget although they should have more correctly been charged to regular budget provisions for the operation of the Organization.

The Secretariat reviewed the issues that needed to be addressed and the observations of the Board of Auditors on the actions that in its view needed to be undertaken. After considering the overall projected expenditures of the Organization for the current biennium, it was concluded that the best course of action would be to absorb the additional costs that

were incurred as well as to carry out additional activities required during the next biennium by using other offsetting resources available from the current biennium. The present report therefore contains revised resource requirements and an overall summary of expenditures incurred to date together with a status of the various activities as of the end of October of 1997. These additional requirements amount to $10.4 million. Additional project resources are needed for staff costs mainly to complete the transition at Headquarters, to support implementation at offices away from Headquarters and for contractors' costs mainly to improve Release 3, financial and support services applications, and to complete Release 4, payroll.

It should be recalled that when the project was launched in 1988, the objective was to customize for the United Nations a system that was being developed by the Food and Agriculture Organization of the United Nations (FAO). Limited implementation costs were included and operations costs were excluded. The budget was revised twice, in 1993 and in 1994-1995, to take into account additional development requirements and to incorporate implementation costs. Operational costs for maintenance of the software were also introduced in the 1994-1995 budget and in the proposed budget for the 1998-1999 biennium. Any analysis of variances with the original budget should be made on a comparable basis, in particular by excluding operational and maintenance costs.

I. Introduction

1. The purpose of the Integrated Management Information System (IMIS), which was approved by the General Assembly in section XII of its resolution 43/217 of 21 December 1988, is to develop an integrated system for the processing of, and reporting on, administrative actions at all major duty stations. IMIS is progressively replacing the numerous independent systems, many of which, built many years ago and mostly for regular budget activities, are no longer able to provide the support needed by management at a time of rapidly changing needs and increasing demands made on the administrative sector to support extensive peacekeeping activities and those financed from extrabudgetary resources. The main areas covered by the system are: personnel management; post management; accounting; purchasing; travel; payroll; and budget execution. The Secretary-General has submitted eight progress reports, in 1989,[1] 1990,[2] 1991,[3] 1992,[4] 1993,[5] 1994,[6] 1995[7] and 1996.[8]

2. Release 1 of the IMIS system, comprising human resources applications, was installed at Headquarters in September 1993. Release 2, staff entitlements, and Release 3, financial and support services applications, were implemented in April 1995 and 1996 respectively. The implementation of Release 1 confirmed the benefits that the Organization and Member States would derive from the system and the validity of the technological choices that had been made. It also revealed, however, that the Organization's strategy for the completion of the software construction phase of the system and for its successful implementation worldwide had been inadequate. In early 1994, a thorough reprogramming and rebudgeting of the project was therefore undertaken, with the aim of redefining the level of resources that at that time were estimated to be required for its completion. It should be noted, in this connection, that the Board of Auditors, in its special audit of the project conducted in 1994, had indicated that "as with all complex projects of this nature, it is not inconceivable that further difficulties may emerge as the project continues".[9]

II. Status of the project

A. Release 1 — Human resources

3. Release 1 continues to be widely used at all seven duty stations where it has been implemented so far — New York, Addis Ababa, Bangkok, Geneva, Nairobi, Santiago and Vienna — as well as at the United Nations Development Programme (UNDP) and the International Labour Organization (ILO). Currently there are more than 14,700 staff administered through IMIS at the seven Secretariat duty stations using the system. This includes, in addition to regular staff, local staff, internationally recruited staff for peacekeeping, staff of other organizations administered by the United Nations and short-term staff. In addition, several thousand staff are administered through IMIS by ILO and UNDP. The software is also installed, but not yet operational, at the Economic and Social Commission for Western Asia (ESCWA), the United Nations Children's Fund (UNICEF) and the Office of the United Nations Commissioner for Refugees (UNHCR).

4. This part of the system operates very satisfactorily, is reliable and has benefited from improvements financed by the other user organizations and adopted also by the United Nations. Improvements that have been recorded as desirable are now under review to determine priorities, taking into account in particular the needs of offices away from Headquarters.

5. The other organizations using the system are now coordinating further improvements to it to be financed by each one of them and jointly implemented by mid-1998. It is expected that, in early 1998, UNHCR will start contributing to this common effort.

B. Release 2 — Staff entitlements

6. Release 2 automates the determination of staff benefits by reviewing the contractual situation of each staff member after each personnel action and applying to it the complex rules and calculations required. The results will form the basis for payroll computations. The following entitlements are calculated by the system: gross salary, staff assessment, dependency allowance, adjusted dependency allowance, post adjustment, hardship element of the mobility and hardship allowance, mobility element of the mobility and hardship allowance, non-removal element of the mobility and hardship allowance, pension contribution, language allowance, recruitment allowance, salary differential, non-resident's allowance, termination indemnity, death benefit.

7. As reported in the seventh and eighth progress reports, the implementation of Release 2 brought to light the need for further standardization of personnel data and refinement of some of the entitlements.

8. Towards the end of 1996, the response time of the IMIS system as a whole started declining, mainly because

of the unexpectedly high volume of data generated by the financial applications implemented beginning in April. In order to resolve the critical situation, it was decided to suspend temporarily the operations of Release 2. It was subsequently decided not to turn it on again until the revision, referred to in the last two progress reports, had been completed.

9. The new version of Release 2, developed in close consultation with UNDP and UNICEF, is scheduled to be implemented by the end of the first quarter of 1998. Its implementation will ensure that payroll operations can start in parallel in July 1998 as is now planned.

10. The difficulty in refining this part of the system and the need for the new version of Release 2 are attributable to three main factors:

(a) Complexity of personnel rules and the complexity of the situations that need to be addressed. Additionally, there is the need to compute entitlements in multiple currencies;

(b) The fact that most of the rules that support the definition and payment of benefits to the staff have been developed in the past through inter-agency consultation, without taking into account the extensive cost for implementing and administering them. In some cases, the data to evaluate particular situations did not exist or data required were difficult to collect in a consistent manner;

(c) Inconsistencies in the interpretation of rules and their application among organizations and between duty stations and lack of full documentation on their administration.

11. The re-engineering of this release has confirmed the need for the United Nations system as a whole to carry out a cost-benefit analysis before any new rule or regulation, or modification to existing ones, is agreed upon within the inter-agency consultative bodies. Such an analysis should also include a detailed review of whether the information required for administering the entitlements as modified is available or can be easily obtained.

C. Release 3 — Financial and support services applications

12. As indicated in the eighth progress report, Release 3 is by far the largest and most complex part of the system and its implementation presented more challenges than Releases 1 and 2. The difficulties encountered were greater and more pervasive than foreseen. They can be summarized as follows:

(a) Difficulty in converting data from the old system as a result of the completely different data structure of the two systems and the more stringent edits and validations contained in IMIS. The magnitude of the conversion, involving transactions with a global value of $42 billion and some data inconsistencies in the old systems made this task even more complex. The reconciliation process required one and a half years and significantly delayed the preparation of the financial statements;

(b) Defects in the system, which are common when a new system is implemented. Those generating data problems have been resolved;

(c) Inadequate and insufficient number of reports, requiring expanded development;

(d) The adjustment that users had to make to a completely new working environment with new procedures and more stringent controls;

(e) Additional workload arising from the need in some instances to enter data not previously recorded or to record them in greater detail. In some cases, existing processes that were reasonable for low-volume transactions became somewhat cumbersome for high volumes.

13. Most, if not all, data issues have been identified and work is under way to resolve those remaining. Monitoring (diagnostics) tools are progressively being put in place to verify the integrity of the data on a daily basis. As happens in any new system, additional data issues may arise in the future.

14. While some monitoring tools, developed during the testing period of Release 3, were run on an ad hoc basis, prototype tools have been running on a regular basis since October 1997 to monitor the trial balance, to ascertain that ledger postings reflect the same data as the originating documents and that a ledger balance matches ledger entry. The discrepancies, mostly marginal, were analysed and, if necessary, the system was modified to avoid repetition of such errors.

15. Other difficulties arose in conjunction with the import of data from the field, both from other offices and from peacekeeping missions because of inconsistent formats between the various systems and IMIS and the more stringent edits and validations in IMIS. This affected, in particular, the processing at Headquarters of inter-office vouchers (IOVs). In cooperation with UNDP, work is under way to improve the processes and the bridge to import the data.

16. The difficulties in the generation of reports, as reported in the eighth progress report, arise primarily for three reasons:

(a) Priority had previously been given to reports that would confirm the effective operation of the system since information for financial statements could be retrieved through ad hoc queries directly from the database;

(b) Users had to become acquainted with the new data structure and the new type of information available and to be able to formulate their requirements for the new reports;

(c) It was necessary to fine-tune the reporting architecture to improve the speed in the generation of reports. While the main financial reports have been developed and made available to users, a considerable number remain to be developed, including those for travel, payroll and technical cooperation.

17. The current effort to develop additional reports will need to be continued through 1999. The budgetary implications are contained in chapter III and annex I to the present report.

18. Release 3 has now achieved a satisfactory level of operations; its usage is increasing and data are found to be reliable. Work is still required, however, to make changes and system enhancements to render the system more user-friendly and to facilitate the processing of specific transactions which currently require too many steps. This work will also greatly facilitate the installation and operations of the system at offices away from Headquarters.

19. It should also be noted that any such improvement will contribute to making the system more attractive to other United Nations entities that need to change systems and may decide to opt for IMIS, thus allowing Member States to achieve major savings in terms of system development, implementation and operations.

20. As a complement to Release 3, in September 1997, the travel functionalities, including individual and group travel, shipments of personal effects, issuance of advances, reconciliation of travel claims, payments of assignment grant and lump sums, payment to vendors and billing to other agencies, were successfully implemented. Altogether 252 staff were trained during the first month of operations. These new travel functionalities have been very well received by users. On average 1,000 travel authorizations have been processed each month.

21. During the past year, additional functionalities to automate fully the integration of the procurement package with IMIS were also introduced. A total of nine new interfaces were installed and currently the requisitions, prepared in IMIS, are automatically migrated to the procurement system.

22. Finally, as part of Releases 2 and 3, the first part of the education grant processing (advances) was introduced in June 1997. More than 1,400 advances for the schoolyear 1997/98 were processed through IMIS. The second part of this functionality for claims processing is being tested and will be introduced in early 1998.

D. Release 4 — Payroll

23. Release 4 includes payroll for all categories of staff, time and attendance, insurance and rental subsidy. The development work is at an advanced stage and construction has started.

24. New requirements, mainly related to processing needs at offices away from Headquarters (for example, the existence of several concurrent salary scales for the same categories of staff applicable at the same duty stations, the revised methodology for computing General Service salary scales, local medical insurance schemes with specific requirements) have expanded the scope of the work for this release as compared with what was originally foreseen. The budgetary impact of these additional requirements are outlined in annex I, paragraphs 2 and 3.

25. In addition, as indicated above, since the development of payroll is based on a tight integration with the existing releases, some changes required to those releases have already been identified and are in progress.

26. Payroll is scheduled to be completed by 30 June 1998 and to be run in parallel at Headquarters with the old payroll as of July 1998. It is planned to phase out the old payroll by 1 January 1999.

27. The development of payroll is made more complex by the fact that this is the area where less consistency appears to have been followed in the past among duty stations. It also gives an opportunity to address in a consistent manner, at all duty stations, issues that up to now were addressed on an ad hoc basis in the absence of defined policies and practices.

28. Data standardization in IMIS will also be necessary before payroll is implemented. Plans for this activity are at an advanced stage. It will be initiated in conjunction with the implementation of the new version of Release 2.

E. Long-term maintenance of the system

29. The recruitment of staff for the Maintenance Unit has not yet been completed. As of January 1998, it is expected that 24 out of a planned number of 34 posts will be occupied with regular staff. Candidates for five additional posts that had to be re-advertised are being interviewed and four remaining posts are being re-advertised. The results of the national competitive examination are also expected to identify one additional candidate at the P-2 level. In the meantime, temporary staff are assisting during the transition.

30. Recruitment has been made difficult by the fact that the positions are funded from general temporary assistance until the end of the current biennium only. It was also difficult to find suitable candidates meeting the requirements of the positions as there is high demand for such staff worldwide. The technologies used by the United Nations for IMIS are state of the art and the supply of qualified candidates worldwide is limited, in particular, for "temporary" positions.

31. These delays have hampered the capability of the Organization to take a more active role in the maintenance of the system, in particular in the finance area. All efforts are being made to complete the recruitment process as soon as possible so that dependence on the contractor may be reduced. It is hoped that most of the remaining vacant posts will be filled by the end of May 1998. In the meantime, United Nations staff are working with the contractors' staff to acquire a better knowledge of the system. They will also be involved in supporting implementation at offices away from Headquarters. Resources made available as a result of delayed recruitments were utilized to finance temporary staff in the project and in the Accounts Division for assisting with the transition after Release 3 implementation.

F. Technical infrastructure

32. A major upgrade of the system — to move the application to the most recent software and hardware platforms — was successfully completed. This major task conducted over several months required, among other things, the retesting of the entire application. The main part of the upgrade was introduced in February 1997 at Headquarters. Among its major benefits was the resolution of most of the performance problems encountered at the end of 1996 and the beginning of 1997 which had occasioned the decision to interrupt the operation of Release 2. Currently more than 400 users access IMIS daily and there are on average more than 270 concurrent users. More than 1,200 different users have accessed IMIS since January 1997.

33. As part of the enhancements implemented to the underlying technical infrastructure used by IMIS, a state-of-the-art disk array unit was installed and configured connecting all the IMIS production servers. This facility is based on the most modern data storage technology and optimizes speed of data access. As a result, both performance and data integrity have been substantially enhanced.

G. Offices away from Headquarters

34. The set-up of the IMIS infrastructure has been completed at all duty stations. Release 1 has been implemented as follows:

Vienna	June 1996
Bangkok	September 1996
Geneva	March 1997
Santiago	April 1997
Nairobi	June 1997
Addis Ababa	October 1997

35. The implementation at ESCWA, which had to be postponed because of the move of the Commission to Beirut, is planned for February 1998.

36. Overall, 320 users were trained at these duty stations for initial implementation, in addition to technical staff. The implementation at these offices has been very successful and relatively easy, even though the quality of data was uneven. In most cases, the implementation required a major data standardization/collection effort on the part of the local administrations. A massive effort was successfully undertaken by the United Nations Office at Geneva, where a large number of staff were administered with separate databases for each entity. Difficulties were encountered at Nairobi since the data had previously only been partially available in electronic format and had been maintained in separate locations; these difficulties were also successfully resolved.

37. The Economic Commission for Africa (ECA) started its operations with the new upgraded version of IMIS. The United Nations Office at Geneva (UNOG), the United Nations Office at Vienna (UNOV), the Economic commission for Latin America and the Caribbean (ECLAC) and the Economic and Social Commission for Asia and the Pacific (ESCAP) were also successfully upgraded. The

United Nations Office at Nairobi (UNON) will be upgraded by early December 1997. This will facilitate the distribution of new versions of IMIS so that all duty stations will be synchronized using the latest version of the software and it will be easier to collect global data centrally at Headquarters.

38. Preparatory work is starting for the implementation of Releases 3 and 4. In Geneva, the major challenges will be the same as those encountered and overcome for Release 1: linkage of the technical infrastructure owing to the complex layout of the Palais des Nations and the existence of offices outside of the Palais compound; size of the duty station; and separate databases. Tentatively, Release 3 will be implemented by the end of 1998 in Geneva and Vienna, with Release 4 following in 1999. Releases 3 and 4 will be implemented during 1999 at the other duty stations.

39. Release 3 is scheduled to be implemented in two phases: first a small group of staff will be trained at each duty station to run the system in parallel for selected accounts for a few months to ensure that all the local workflows and operations can be accommodated and that organizational changes, if required, are planned before full operation of the system. These staff, together with Headquarters staff, will in turn train their colleagues at the time of full implementation. The implementation date at each location will therefore be based on the assessment of the level of readiness by the local administration.

40. Detailed implementation plans will be prepared following the assessment of Release 3 implementation at Headquarters, including the impact of the data conversion. It had been planned to have the detailed implementation activities coordinated by staff of the Office of Programme Planning, Budget and Accounts but the complexities of the tasks and the workload in the Office have led to the conclusion that a special team would need to be hired to assist each duty station in the transition. The budgetary implications are stated in paragraph 1 of annex I, to the present report.

H. Other activities

41. As indicated in last year's report, the Secretariat considers that the best method for enabling the peacekeeping operations, special missions, tribunals and small offices of the United Nations to use IMIS is through remote accessing of the system. The technology was successfully tested. The results of this exercise are being evaluated to determine the cost implications of porting IMIS to the Web.

42. Once the evaluation has been completed, the results will be shared with all other organizations that use IMIS to determine a common strategy, if feasible, and the modalities for their financing of this project. This may bring major benefits to all organizations using IMIS, reducing installation and operation costs locally and allowing each organization to maintain worldwide consolidated databases of personnel and financial records.

I. Other organizations

43. It should be recalled that the Secretariat provides the IMIS software at no cost tc other organizations of the United Nations system. At present the following other organizations have decided to use IMIS:

(a) UNDP has implemented the human resources portion and started plans to implement the entire system at Headquarters by early 1999;

(b) UNICEF is completing the steps to implement the human resources portions starting January 1998; the United Nations will process UNICEF payroll using IMIS;

(c) ILO has implemented the human resources part of the system and is preparing for the implementation of the entitlements and of payroll;

(d) UNHCR has started the process for implementing the human resources and entitlements parts of the system; UNOG will process UNHCR payroll using IMIS.

44. A further number of United Nations organizations also benefit from IMIS. The International Trade Centre (ITC) at Geneva uses IMIS since administrative support is provided by UNOG; the United Nations Population Fund (UNFPA) and the United Nations Office for Project Services (UNOPS) in New York are IMIS users since administrative support is provided to them by UNDP.

45. The usage of only the human resources applications by some organizations should not be underestimated. Most of their expenditures are in fact related to staff costs, and a solid and reliable human resources management tool is essential for their operations. The availability of the entitlements module and the possibility of using specific parts of Release 3 such as travel or education grant, for example, is of great benefit to them and eliminates the need for investments on their part in these complex areas.

46. It is expected that other United Nations organizations will need to change their administrative systems within the next five years. In addition, many organizations need a field system which is fully integrated with their headquarters

system. At present there are at least five different systems, or sets of systems, being deployed in the field, often at the same locations by different organizations.

47. It is the view of the Secretariat that close cooperation should be established among all the entities of the United Nations system that need new administrative systems for a greater usage of IMIS and for the development of a common field system for all organizations that have such a need, possibly fully integrated with IMIS.

48. The costs for developing, implementing and operating modern integrated systems meeting the specific United Nations requirements are very high. The experience of the work carried out related to Release 1 by the United Nations, UNDP and ILO (and, soon, UNICEF) has already demonstrated the advantages of such a common undertaking by allowing all users to benefit from improvements made by the other organizations. Greater benefits, and savings for Member States and organizations, would be derived from an expanded usage of the system.

49. Work has already started and is progressing on the creation of a common service capacity for the maintenance and operations of IMIS within the framework of the Task Force on Common Services established by the Secretary-General. This work could be used as a basis for further cooperation with other entities of the United Nations system. An inter-agency structure similar to that in existence for the International Computing Centre could be put in place to ensure that the interests and requirements of all users are taken into account and that maintenance costs are shared fairly.

III. Budgetary aspects

50. The project had undergone a major reprogramming and rebudgeting in mid-1994. Project activities since then have been conducted within the overall budget estimated at that time and approved in 1995. The difficulties related to Release 3, as reported in the present progress report, have led to a slippage in the implementation schedule of Release 4 at Headquarters and of the system as a whole at offices away from Headquarters. The very substantial additional work required for the refinement of Release 2 and the implementation of Release 3 at Headquarters has also led to many increased costs that had not been foreseen in 1994. As reflected in the table below, net additional requirements, after use of all available absorption opportunities, are

Revised estimates for the development and implementation budget of the Integrated Management Information System[a]

(Thousands of United States dollars)

	Budgeted 1989-1997	*Estimated expenditure as of 31 December 1997*	*Estimated expenditure 1998 to project end*	*Revised total*	*Increase decrease*
General temporary assistance/Overtime	14 157.0	12 847.3	6 650.5	19 497.8	5 340.8
Travel	2 413.8	707.0	471.0	1 178.0	(1 235.8)
Training	5 440.4	2 910.0	1 960.0	4 870.0	(570.4)
Contractual services	34 370.4	36 871.7[b]	5 378.0	42 249.7[b]	7 879.3[b]
Communications	272.1	290.0	—	290.0	17.9
Supplies/miscellaneous	196.2	165.0	48.0	213.0	16.8
Hardware	3 426.6	2 825.0	95.0	2 920.0	(506.6)
Software	2 709.9	1 630.0	100.0	1 730.0	(579.9)
Total	**62 586.4**	**58 246.0**	**14 702.5**	**72 948.5**	**10 362.1**

[a] Estimated requirements for maintenance of $12.7 million were provided for the period 1994-1997. $9.8 million is provided for in section 27D of the proposed programme budget for 1998-1999.

[b] Including provision of $3.2 million of costs relating to implementation support provided by the contractor in the absence of adequate internal staff resources as mentioned above.

estimated at $10.4 million. Additional resources are needed for staff costs, mainly to complete the transition at Headquarters, to support implementation at offices away from Headquarters and for contractors' costs, mainly to refine and improve Release 3, financial and support services applications, and for Release 4, payroll.

51. The Secretariat reviewed the options for addressing these issues and considered the observations of the Board of Auditors on the actions that in its view needed to be undertaken. After considering the overall projected requirements of the Organization for the current biennium, it was concluded that the best solution would be to absorb the additional cost in the current biennium by offsetting against available under-expenditures. The overall costs of $10.4 million include $3.2 million for implementation support provided by the contractor since 1993, as it had been assumed the bulk of these tasks could be undertaken with internal staff resources.

52. The present report therefore contains revised resource requirements and an overall summary of expenditures incurred so far together with a status of the various activities as of the end of October 1997.

53. The overall estimates reflecting all development and implementation costs through completion are submitted below. They were prepared after a thorough analysis of the alternatives, which included: reduction in scope of the remaining phases of the project, delayed implementation at offices away from Headquarters, and a reduction in the number of changes/improvements to be made to Releases 2 and 3. Non-essential changes/improvements will not be made. Nevertheless, it was considered unavoidable to request Member States to support an additional effort to improve the system further by reallocating resources already appropriated for the current biennium, since the work for which resources are currently being sought would need to be carried out in any case at a later stage. All other options would have led to the need for additional appropriations during the next biennium, mainly to modify existing systems which are obsolete and would at all events need to be adapted to become year 2000 compliant.

54. Provisions for completing the project will be requested in the context of the second performance report for the biennium 1996-1997. It may be noted from the table that while remaining expenditures to be incurred for IMIS development and implementation after 1 January 1998 are anticipated to equal $14.7 million, financing for this would be provided from $4.3 million of existing resources already available for IMIS activities and $10.4 million by transfers from under-expenditures realized under other sections of the programme budget for the biennium 1996-1997. In this regard, it is recalled that in recognition of the multi-year nature of the project, a separate IMIS account was proposed in 1989 to provide for any unexpended balance to be carried forward to the succeeding year/biennium until project completion. The General Assembly accepted the Secretary-General's proposal, which was supported by the Advisory Committee on Administrative and Budgetary Questions. As this arrangement has worked smoothly for the last eight years, it is proposed that it be kept in place until Release 4 has been fully implemented. The financial and economic burden on Member States is unaffected by the choice as to whether the resources are made available in the 1996-1997 biennium or in the 1998-1999 biennium. However, it is believed that allowing the burden of requirements to fall on the 1996-1997 biennium would be in the best interests of the Organization as it would permit the completion of the IMIS project without in any way impacting negatively upon the Organization's ability to undertake other activities in 1998-1999.

55. As shown in the table, the overall development and implementation costs of the project from its inception in 1989 through completion are estimated at $72.9 million, against an approved budget of $62.6 million. Additional expenditures were incurred, and are expected to be incurred, in two areas, general temporary assistance (+$5.3 million) and contractual services (+$7.9 million). Part of these over-expenditures are offset by savings in travel costs (-$1.2 million), training (-$0.6 million), hardware and software (-$1.1 million).

Staff costs

56. Project staff costs have been budgeted under temporary assistance. Expenditure as of 31 December 1997 is projected to amount to $12.8 million against a budgeted amount of $14.2 million. Expenditure for the remainder of the project is estimated at $6.7 million. Additional requirements over and above budgeted provisions would amount to $5.3 million.

57. As detailed in annex I to the present report, the additional resources are related to the temporary strengthening of the Accounts Division to cope with the continuing additional workload related to stabilization of Release 3 including data problems arising from conversion, reporting, implementation of Release 4 and post-implementation activities, as well as implementation at offices away from Headquarters. The improvement of Release 3 is particularly critical for three reasons. Firstly, it is necessary to preclude any repetition of the experience

in the current biennium whereby the production of basic financial statements has been possible only with the expenditure of an undue amount of staff resources at all levels of the Accounts Division and the IMIS project — and even then with a much delayed schedule. Secondly, stabilization of Release 3 is required to provide a sound foundation on which to place the payroll and other operations to be implemented under Release 4. Finally, the Release 3 stabilization at Headquarters is essential before the release can be installed at Geneva, Vienna, Nairobi, Addis Ababa, Bangkok, Santiago and Beirut. Any attempt to install Release 3 at these locations before it is stabilized in New York would risk a situation where current operating problems would be multiplied rather than reduced.

Consultants/contractual services

58. Estimated expenditure as of 31 December 1997 would amount to $36.9 million against a budgeted amount of $34.4 million. The difference relates to a multitude of tasks the largest of which were for out-of-scope items and implementation support provided by the contractor in the absence of adequate internal staff resources.

59. Additional requirements over and above budgeted provisions would amount to $7.9 million. These would be needed to complete payroll and the new version of Release 2 and to improve Release 3 while transferring the responsibility for system maintenance to the United Nations. The additional work is geared towards an improvement of the system to facilitate its implementation at offices away from Headquarters. Detailed requirements are listed in paragraphs 2 and 3 of annex I.

Travel

60. Based on the experience related to Release 1 implementation at offices away from Headquarters, the estimated travel costs have been reduced from $2.4 million to $1.2 million. This has been and will continue to be achieved by combining trips by Headquarters staff to more than one duty station at a time and is the result of improved packaging of the IMIS software that allows it to be installed by one staff member instead of two as originally budgeted.

Training

61. The estimated overall expenditure in training of $4.9 million, as compared with the 1994 estimates of $5.4 million, is attributable to a reduction in travel costs and the fact that training is being administered by United Nations staff instead of the contractor, as recommended by the Board of Auditors in 1994.

Hardware and software

62. The estimated overall costs for hardware and software amount to $4.6 million, as compared with the 1994 estimate of $5.7 million. The reduction relates to falling prices of hardware and the negotiation of contracts at preferential rates with vendors of software.

IV. Conclusions and recommendations

63. As reflected in the present as well as earlier reports, the development and implementation process of the system has been extremely difficult. The main reasons for these difficulties have been found to lie in the overall underestimation of the magnitude of the task when the project was launched, inadequate original specifications, lack of documented procedures, lack of experience in the Organization in systems development (no major development work had been undertaken for over 30 years) and unavailability of the data required or inconsistency in the data structure between the old systems and IMIS. All of this led to an underestimation of the level of staff resources that would be required during the development, implementation and transition phases.

64. This situation was further affected by the fact that the budget had been prepared on the basis of reasonably expected costs without any cushion for unforeseen difficulties. It was known and reported that such adverse events could transpire — and did in fact occur. These conditions led to delays in the completion of the project and in additional costs arising from the need to use contractors for implementation and maintenance tasks.

65. In spite of all these difficulties, which are common for this type of undertaking, the United Nations has managed to develop and implement a system that functions and meets the specific requirements of the Organization. Its achievements have been recognized by the industry, and in 1997 the system was selected to become part of the permanent collection on information technology of the Smithsonian Institution in Washington. Indeed the system needs to be improved. What is required has been well documented. The reliability of the system has been

demonstrated, although the transition after the implementation of Release 3 was difficult but eventually successful. The improvements, for which additional resources have been requested, will greatly facilitate the work at all offices away from Headquarters and of the other organizations that use or may decide to use the system and will provide a stronger basis for the future operation of the United Nations worldwide.

Notes

[1] A/C.5/44/8.

[2] A/C.5/45/20.

[3] A/C.5/46/24.

[4] A/C.5/47/27.

[5] A/C.5/48/12.

[6] A/C.5/48/12/Add.1.

[7] A/C.5/50/35.

[8] A/C.5/51/23.

[9] A/49/680, annex, para. 6.

Annex I

Detailed justification of the additional resources required

General temporary assistance

1. At the end of 1997, a residual balance of approximately $1.3 million is projected under general temporary assistance as a result of the postponement of Release 4 (payroll) at Headquarters as well as of Releases 3 and 4 at offices away from Headquarters. The projected expenditure at the end of 1997 also reflects the reallocation of an estimated $400,000 in 1996-1997 from the above tasks to provide for additional implementation support in the Office of Programme Planning, Budget and Accounts. The amount of work involved since implementation — mainly problems related to conversion, the adjustment to the work processes, processes that resulted in more labour-intensive activities as a result of more stringent edits and validations in IMIS — made it necessary to maintain on board temporary staff in the Accounts Division and the Treasury to cope during the transition.

2. Resource requirements in 1998-1999 are estimated at $6,650,500. Taking into account the projected balance of $1.3 million at the end of 1997, net additional resources of $5.3 million would be required. The proposed resources of $6.6 million would cover the following staffing:

Item	*Thousands of United States dollars*
Release 4 (Payroll)	461.9
1 P-4 Payroll Coordinator	
1 P-3 Payroll Analyst	
Implementation at offices away from Headquarters	3 117.9
1 P-5 Implementation Coordinator for offices away from Headquarters	
7 P-4 Coordinators at offices away from Headquarters	
2 P-4 Systems Accountants	
2 P-3 Systems Accountants	
Reporting team	900.9
1 P-4	
3 P-3	
1 P-2 (three months)	
Accounts Division support	2 169.8
3 P-4	
4 P-3	
5 General Service (Other level)	
Total	**6 650.5**

3. The increased requirements under this heading reflect the extension of the staff required for Release 4 and implementation at offices away from Headquarters for the entire biennium 1998-1999. However, in view of the extension of the appointments of the P-4 local coordinators at offices away from Headquarters and of the proposed hiring of systems accountants referred to in paragraph 4 below, the seven P-3 staff for technical support at offices away from Headquarters that had been budgeted for would not be required. In addition, it is proposed to extend the reporting and interfaces team.

4. Based on experience at Headquarters, it is also proposed to hire four systems accountants at the P-4/P-3 level, who will coordinate the implementation of Releases 3 and 4 at offices away from Headquarters (conversions, processes, interfaces, training). They will be in charge of implementation at UNOG, UNOV and ESCWA, UNON and ECA, ESCAP and ECLAC, respectively. On the basis of the experience in the implementation of Release 3, it is expected that the Office of Programme Planning, Budget and Accounts will not be in a position to release staff to support the implementation-related activities in the field while at the same time monitoring the quality of data that will be coming from these offices after the implementation. Owing to year 2000 compliant requirements, it is *imperative that Releases 3 and 4 be implemented* at these offices before the end of 1999.

5. Additional resources are also required to strengthen temporarily the Accounts Division to cope with the continuing additional workload arising from the implementation and transition to Releases 3 and 4, as well as improvement of Release 3. Approximately 168 work-months at the Professional level and 120 work-months at the General Service level for a total requirement of $2.2 million are required in addition to the $100,000 already proposed for the Accounts Division in the 1998-1999 programme budget for support related to implementation of Release 4.

6. In order to improve Release 3, the main activity of some of the staff will be to analyse functional requirements, to review and discuss with contractors and technical staff the design documents, to test various changes made in IMIS, to prepare procedures documents to be used at all duty stations and to retrain staff on an ongoing basis in new functionalities. For the successful implementation of Release 4, the Accounts Division will assign a number of staff on a full-time basis to review functional documentation, review

and discuss with contractors and technical staff the design documents, and test and run in parallel the new system for at least six months. Efforts will also be required to ensure the successful migration of data from payroll to IMIS. At the same time, the Accounts Division will continue to process payroll using the current system during the first half of the biennium using existing resources. Accounts Division staff will also assist in and monitor the implementation of Releases 3 and 4 at offices away from Headquarters and review the data originating from those offices.

Contractual costs

7. Contractual costs at the end of 1997 exceeded the budget by approximately $2.5 million. The increase relates to the addition of out-of-scope items, implementation and operations support, bridges and interfaces, and development of reports and monitoring tools.

8. The requirements of $5,380,000 proposed for 1998-1999 relate to the following activities:

(a) Additional functionalities for Release 4 and changes to Releases 1, 2 and 3 for payroll (estimated at $1.0 million);

(b) Completion of changes to Release 2 and education grant implementation ($340,000);

(c) Development of additional reports (the reports team includes both staff and contractors), mainly related to Release 3, travel, and payroll ($300,000);

(d) Changes and improvements to Release 3 ($3,738,000). This estimate is based on the assumption that an average of 2.0 workmonths of contractual services each would be required to resolve the priority issues.

Summary of budgeted contractual services showing additional requirements and revised total requirements

Contractual services		*Thousands of United States dollars*
Budgeted 1998-1999		34 370.4
Net additional requirements through 1997 including out-of-scope items, implementation support, bridges, interfaces, reports and monitoring tools		2 501.3
Additional requirements after 31 December 1997		5 378.0
Additional functionalities for Release 4 and changes to Releases 1, 2 and 3 for payroll	1 000.0	
Completion of changes to Release 2 and education grant implementation	340.0	
Development of additional reports (travel and payroll)	300.0	
Changes to Release 3 (contractual services required to resolve priority issues)	3 738.0	
Revised total requirements		**42 249.7**

9. As recommended by the Board of Auditors, more detailed monitoring of each task is being put in place to ensure close control over the expenditures in this area to relate them to specific deliveries of software changes. Each change will be identified and its costs estimated either individually or in conjunction with other changes to the same part of the software to be undertaken at the same time.

Annex II

Analysis of the overall cost of the project

1. The project was launched in 1989 but effectively started in early 1990. As requested by the Advisory Committee on Administrative and Budgetary Questions, a summary of the overall costs related to the project, incurred since its inception and for different activities, is provided below.

2. The costs related to IMIS have been budgeted/incurred under two separate headings:

(a) **IMIS project:** for development and worldwide implementation activities. The consolidated budget under this heading, approved in 1995, is for $62.6 million. The request for additional funds for the next biennium would bring the total to $72.9 million.

(b) **IMIS maintenance:** for ongoing operation and long-term maintenance of the software and of the hardware at all duty stations. Maintenance expenditure in 1994-1995 amounted to $5.1 million and in 1996-1997 is projected at $7.5 million. For 1998-1999, the proposed programme budget includes provision of $9.8 million under section 27D.

Total projected costs for development, worldwide implementation and operations of the IMIS system 1989-1999

(Thousands of United States dollars)

Development implementation		*Maintenance and operations*	
1989-1997	*1998-1999*	*1994-1997*	*1998-1999*
58 246	14 703	12 686	9 825

3. While it is correct to state that all these costs are IMIS related, it would be misleading to sum the two elements as the total cost of the IMIS project. As identified by the Board of Auditors and described below, these costs include also activities undertaken in conjunction with and because of the IMIS project but not necessarily attributable to the project itself, as well as activities which are part of the ongoing administrative operational costs of the Organization. The IMIS project is an investment similar to the construction of a building and the ongoing maintenance and operation costs should therefore not be used in any cost variance analysis.

4. More specifically, the IMIS project costs include three different types of expenditure, systems development, implementation and maintenance. Because of the way the budget was constructed and the fact that implementation activities were progressively assigned to the IMIS project team or their related costs charged to the same, it is difficult to define precisely the amounts spent under systems development and implementation, respectively. But it is important to describe what each activity involves in order to gain a better understanding of the costs of the project:

(a) *Systems development* concerns the staff assigned to the construction, the travel costs mainly to/from offices away from Headquarters, the training costs of IMIS team members and of technical staff from offices away from Headquarters and the Information Technology Services Division in the new technologies introduced with IMIS, the contracts with consulting firms to build the system and to provide other highly specialized services, the purchase of hardware used for development (PCs, printers, UNIX servers, etc.) of all the UNIX servers for production at Headquarters (9 servers) and at the offices away from Headquarters (22 servers), and the licensing of software used for development and operation of the system at Headquarters and all offices away from Headquarters;

(b) *Implementation-related costs* include the salaries of staff outposted at the seven major offices away from Headquarters; staff costs for staff of the Office of Human Resources Management and the Office of Programme Planning, Budget and Accounts before and after implementation of releases 1, 2, 3 and 4; temporary assistance for offices away from Headquarters for data collection and standardization; staff costs for staff of the Information Technology Services Division for initial set-up and technical support of the implementation at offices away from Headquarters; travel for surveys of technical infrastructure, IMIS installation and support of offices away from Headquarters before and after implementation; training activities, including the development of a comprehensive training module; context-sensitive help screen; on-line training system; 1,800 pages of desk procedures now available on-line; training of more than 1,000 staff at Headquarters and of about 400 staff at offices away from Headquarters; contractual services—planning and support of implementation activities once they were assigned to the IMIS project team: initial help desk activities, technical support for the operations of the system, support to users, assistance in the review of procedures, etc., assistance in data standardization, writing of scripts to correct data errors in the conversion, etc.; hardware and software — one UNIX

server, PCS, related software, projection equipment and printers for two training rooms at Headquarters;

(c) Expenditure related to the *operations* and *long-term maintenance* of the system:

— General temporary assistance. This concerns principally the maintenance team. During the biennium 1996-1997, the costs were computed taking into account the transition between the development team and the maintenance team;

— Contractual services. These include contractors' work for changes and enhancements to the software as well as advice in highly technical issues;

— Travel (1998-1999 budget only). Principally one trip per year from/to each office away from Headquarters for technical/functional assistance, tuning and training of technical staff;

— Hardware and software. Maintenance costs for all UNIX servers worldwide, replacement of servers at Headquarters, maintenance costs for all software used for development and operations worldwide, purchase of additional software licences and upgrades.

5. As can be seen from the above, the IMIS budget documents have always contained a global presentation of the project expenditures for all duty stations concerned. It should be recalled that, since its inception, the IMIS system had been designed to be a common system for the eight major duty stations. As there have never been documents summarizing at the Organization level expenditures incurred for systems development and operations, and as expenditure for both administrative and substantive systems have been merged most of the time at the level of each duty station and often at the level of multiple organizational units at the same duty station (for example at Geneva), it is difficult, if not impossible, to make any comparison with prior expenditure.

6. Such a consolidation of all expenditures related to one activity across duty stations is rare in the Organization, if not unique. In this connection, it should also be recalled that for many years only limited investment in administrative systems had been made by the Organization (the accounting and payroll systems are more than 35 years old) and that in most cases, offices away from Headquarters have had limited administrative systems and hardly the capability of building and maintaining new ones. In other words, the investment made for IMIS greatly benefits offices away from Headquarters while allowing for a better monitoring on the part of the Department of Management.

7. The overall construction and implementation budget, estimated at about $72.9 million for the period 1990-1999, represents an average expenditure of $7.3 million a year — for all duty stations.